REMARKS

In the Written Opinion, the examiner states that claims 9-13 lack novelty, and claims 1-5, 7, 8 and 17-20 are obvious on the basis of O'Konski (US 3,802,147).

Regarding claim 1, the references do not disclose the use of concrete having a density of 400 to 1760 kg/m in the context of a composite steel and concrete panel. As discussed in the specification at page 3, lines 16-18 and at page 7, lines 19-26, light weight concrete has not been used in prefabricated, vertical building panels. Conventional wisdom was to use heavy concrete and make the panels thinner to reduce weight. There is no support in the cited art for the assertion that it is an obvious design choice to use lightweight concrete of the claimed density range. Further, aerated concrete is a different product that conventional heavy concrete, and is not merely a matter of discovering optimal or working ranges.

Lightweight and aerated concrete differs from conventional heavy concrete in that a foam or other air entraining additive is combined to the mixture of aggregate and binder to provide extra workability and protection from freeze thaw. In exchange for workability, you get a decrease in loading capabilities in aerated concrete. For this reason, ordinary or heavy concrete is typically used in load bearing structures because it is stronger. O'Konski doesn't disclose the use of air entraining additives and cannot achieve the stated density range merely by "optimizing" the constituents disclosed in the reference.

With respect to dependent claims 2-8, none of the references disclose the features in combination with independent claim 1. Additionally, none of the references disclose the use of aerated concrete having a density of 400 to 1760 kg/m in a composite steel and concrete panel. As discussed, *supra*, aerated concrete of the specified density is not an obvious design choice.

Further, as to independent claims 1 and 9, O'Konski discloses a composite panel in which frame tabs 11, 12, 15, 19 are embedded in a concrete slab 14. However, the flanges of the frame members 10, are not embedded in the concrete 14. O'Konski teaches away from embedding the flanges of frame members 10 into the concrete 14, stating: "a spaced relation between the wall surface elements and the steel studding" more effectively provides insulation, a lower fire rate index, and other asserted benefits. See, col. 3, lines 11-19.

Claim 9 requires openings in the flange with concrete extending through the flange opening. O'Konski Fig. 2 shows a strip 15 embedded in the slab, a horizontal "opening" between the strip and the flange, and a vertical opening in the flange (from which the strip was removed). The concrete does not extend to or through this later "opening in the flange."

Dependent claims 9-16 recite additional patentable features in combination with independent claim 9.

Independent claim 17 requires an outer member removably fastened to the frame, sealingly engaged with the pouring pad and configured to retain the concrete, and being removable after the concrete cures. See, outer member (54) in Fig. 9 of the subject application. It is submitted that the prior art merely discloses frame members which are peripherally located. For example in O'Konski, the Examiner cites members 17 and 18 as outer members, however, members 17 and 18 are merely peripheral frame members and not outer members as defined in claim 17 for retaining the concrete as an outer form during casting.

Dependent claims 18-20 recite additional features directed to the outer member. Claim 18 is directed to at least one outer member bounding at least one edge of the panel, and claim 19 is directed to at least one outer member bounding the entire panel. Additionally, claim 20 is directed to an outer member that is pressure fit against the frame. None of the references disclose or even suggest using an outer member, let alone an outer member bounding one or all edges, or an outer member that is pressure fit against the frame. The references merely lower the frame onto a pouring pad using prior art techniques to maintain the concrete in the specified area, such as bulkheads.

Claims 21-23 are rejected as lacking inventive step over Schilger (US 4,602,467). Schilger does not disclose or suggest the step of flipping the outer member (54) over 180-degrees. Further, Schilger does not disclose or suggest using outer members (54) that are separate members attached to the frame (14). Further still, Schilger does not disclose or suggest depositing concrete onto the pouring pad (53) to a depth that embeds the frame (14), nor does Shilger disclose spacing the frame above the pouring pad with the outer member. Instead, Schilger merely discloses placing the frame assembly on the top surface of the concrete and vibrating the assembly to cause it to sink into the concrete.

Barrett (US 4,649,682) is cited for anticipating claim 24. However, Barrett does not disclose sandwiching insulating material between the frame members. See, e.g., Barrett Fig. 7. There is nothing between the abutting frame members.

Further, inserting insulating material between Barrett's frame members would likely interfere with continuous weld (99).

Claims 7 and 8 are objected to as indefinite. The dependency of Claim 8 has been amended to correct this indefiniteness.

Reconsideration of claims 1-24 and issuance of a favorable Preliminary Examination Report are respectfully requested. It is believed that all claims meet the objectives of the PCT with respect to novelty, inventive step and industrial applicability as stated in PCT Article 33(1) by meeting the requirements of PCT Article 33 (2-4).

Respectfully submitted,

GREER, BURNS & CRAIN, LTD.

By
Laura R. Wanek
Registration No. 53,737

January 3, 2006

Greer, Burns & Crain, Ltd.
300 South Wacker Drive, Suite 2500
Chicago, Illinois 60606
(312) 360-0080
Fax: (312) 360-9315
Customer No. 24978